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Discussion

Dr Paul E. Van Schil *(Antwerp, Belgium)*. I would like to thank the Association for the privilege of discussing this excellent paper and I thank the authors for sending me the slides in advance.

Isolated lung perfusion is an experimental technique to deliver high-dose chemotherapy to the lung without systemic exposure in order to obtain better drug targeting. A lot of experimental and, recently, also clinical studies have been performed to evaluate toxicity, pharmacokinetics, and efficacy. In fact, 1 of the first clinical studies originated from Toronto, performed by Michael Johnston, and published in 1995 in the *Journal of Thoracic and Cardiovascular Surgery*. It is stimulating to see that the Toronto group, having extensive experience with ex vivo lung perfusion, has picked up experimental in vivo lung perfusion studies again. The authors are to be congratulated for performing a difficult experimental study. In our current clinical phase 2 study, which we perform together with 3 thoracic surgical centers in The Netherlands, a dose of 45 mg of melphalan is used with a perfusion time of 30 minutes. In the present experimental study, the authors demonstrate that in a pig model, perfusion times up to 4 hours are feasible without any significant lung injury.

I have several questions for the authors and I will list them separately. Why did you specifically choose Steen solution to perform the lung perfusion, which is rarely used in clinical in vivo perfusion studies, in contrast to transplantation?

Dr dos Santos. We used Steen solution because it is a solution specially developed for lung perfusion and, because of the increased oncotic pressure, it keeps the water in the intravascular space and avoids lung edema.

Dr Van Schil. Did you temporarily occlude the arterial bronchial circulation during perfusion?

Dr dos Santos. Yes. We try to dissect the bronchial circulation as much as we can, because we noticed that if you do not dissect and try to ligate these vessels, you are going to have a significant leak from the bronchial circulation into the pulmonary circulation and consequently to the circuit, and this might lead to hemodynamic instability.

Dr Van Schil. Regarding the lung injury, how were the different scores determined with a range from 0 to 12, and was this a validated score?

Dr dos Santos. It is an injury score used by our pathologists at Toronto General Hospital. I'm sorry, I don't understand the question.

Dr Van Schil. Regarding the lung injury, you make a distinction between scores from 0 to 12. Was this a validated score? We are very interested in that because we do not have a good scoring system for lung injury during perfusion.

Dr dos Santos. My feeling is that it is a validated score, because it is the same score that we have used for many acute lung injury studies done in our institution. I hope that I'm answering your question.

Dr Van Schil. Lastly, perfusion was done at normothermia. Do you have any data on hyperthermic perfusion?

Dr dos Santos. We know that hyperthermia might increase the uptake of drugs, and probably this is 1 variable that we are planning for future studies.

Dr Van Schil. Thank you.